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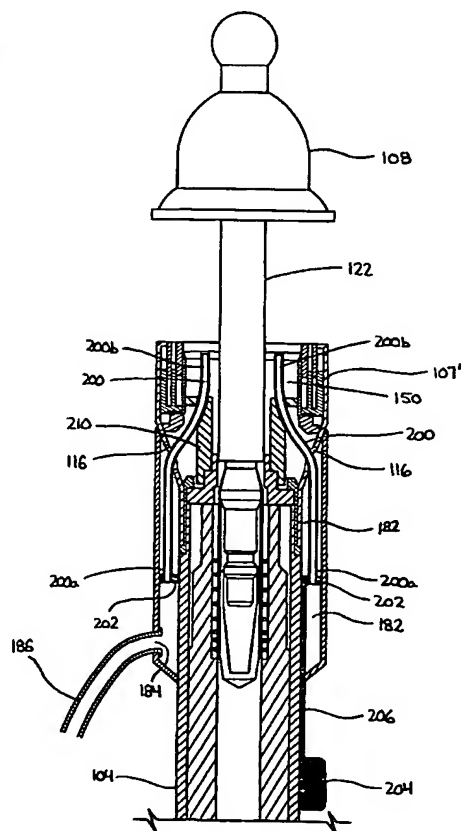
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[Continued on next page]

(54) Title: **VACUUM ASSISTED SURGICAL STAPLER**



(57) Abstract: A surgical stapling apparatus having a vacuum device associated therewith is disclosed. The vacuum device may be removable, fixedly secured thereto, or incorporated into the surgical stapling apparatus. The vacuum device may include a resilient band and vacuum tube secured to the shell assembly or body portion of the surgical stapling apparatus. Alternately, a vacuum chamber may be secured about the shell assembly and/or body portion of the stapling apparatus. In addition, one or more vacuum tubes may be positioned in the vacuum chamber. The vacuum tubes, preferably, extend into the shell assembly and are movable between nondeployed and deployed positions such that a distal end of each tube can be selectively positioned at multiple positions between the shell assembly and an anvil. The vacuum tubes can be formed of a shape-memory material such that the tubes point radially outwardly of the shell assembly when the tubes are in the deployed position.



European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 03/41068

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A61B17/115

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EP0-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 839 639 A (SAUER) 24 November 1998 (1998-11-24) column 10, paragraph 5; figures 34,36 column 1, line 20; figures 8,16 -----	1
A	US 5 119 983 A (GREEN) 9 June 1992 (1992-06-09) figure 5 -----	1
A	US 6 241 140 B1 (ADAMS) 5 June 2001 (2001-06-05) column 13, paragraph 6 -----	1
A	US 6 083 241 A (LONGO) 4 July 2000 (2000-07-04) cited in the application -----	
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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"&" document member of the same patent family

Date of the actual completion of the international search

2 April 2004

Date of mailing of the international search report

19 JUL 2004

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 03/41068

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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A	US 4 350 160 A (KOLESOV) 21 September 1982 (1982-09-21) -----	
P,A	WO 03/053255 A (TYCO) 3 July 2003 (2003-07-03) -----	

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 03/41068

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-5

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-5

Annular stapling apparatus with vacuum connection provided
by resilient band around staple shell

2. claims: 6-12

Annular stapling apparatus with vacuum connection provided by
housing surrounding staple shell

3. claims: 13-18

Annular stapling apparatus with vacuum connection provided
through anvil shaft

INTERNATIONAL SEARCH REPORT

information on patent family members

International Application No

PCT/US 03/41068

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International Application No

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